

## PATENT ABSTRACTS OF JAPAN

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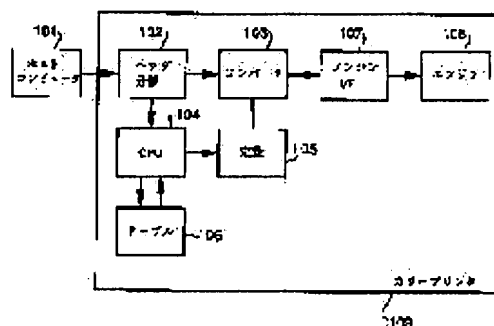
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(54) COLOR PRINTER

(57)Abstract:

PURPOSE: To prevent a hardware from enlarging by interpolating a value other than an output value of a converted color space constant table for a typical input value, providing a conversion means for converting a color space, and saving a required memory capacity.

CONSTITUTION: An input image data from a host computer 101 is separated at a header by a header separating section 102 and inputted to a color converter 103. On the other hand, the header is inputted to a CPU 104. The CPU 104 selects a table for converting into a color space to be used in printer internal processing from among tables 106 and sets it to a conversion constant 105. As the conversion table selected here consists of only an output value for a specified typical input data, a memory capacity can be reduced. The input image data to the converter 103 is converted into the color space to be used in the printer internal processing by using the conversion constant 105, and the image data after the color space conversion is outputted to an engine interface 107.



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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to a color printer applicable to a copying machine, printers, etc., such as an electrophotography method or electrostatic recording.

[0002]

[Description of the Prior Art] Drawing 2 shows the outline of the conventional color printer. Within the limit [ of 207 in drawing ] is a color printer.

[0003] The image data inputted from a host computer 201 is separated in the header separation section 202. Image data is inputted into the switch type converter 204, and the header unit of image data is inputted into CPU203. CPU203 switches the control signal for choosing which color space the inputted image data is using by the inputted header unit, and the thing which suits out of two or more color space conversion converters inside the switch type converter 204 in order to change into the color space which is identified and is used by printer internal processing, and outputs it to the formula converter 204.

[0004] By the switch type converter 204, if a control signal is inputted from CPU203, out of the color space converters 1-Conv 4 of plurality (the conventional example four lines), the color space converter of CPU affinity will be chosen, the color space of the image data inputted from the header separation section 202 will be changed, and the image data after a color space conversion will be outputted to the engine interface section 205. In the engine interface (ReproductionFunction) section 205, color processing is performed and it actually prints with an engine 206.

[0005]

[Problem(s) to be Solved by the Invention] However, by the above-mentioned conventional printer, it had to have two or more color space converters (a look-up table etc. is included), and there was a problem that hardware will become very large.

[0006] Therefore, the purpose of this invention is to offer the color printer which saved necessary memory space and controlled increase-ization of hardware in view of an above-mentioned point.

[0007]

[Means for Solving the Problem] In order to attain this purpose, the color printer concerning this invention A separation means to separate the header unit of the image data supplied from the external device, The storage means which memorized two or more tables for performing a color space conversion, and a selection means to choose said table for performing a color space conversion based on said header unit, Values other than the output value of a setting means to set said selected table as a color space conversion constant, and said selected color space constant table to a representation input value are computed by interpolation processing, and a conversion means to perform a color space conversion is provided.

[0008]

[Function] The color space is identified, the table for changing into the color space which suited processing of printer engine is automatically chosen out of the table which has more than one, and sets as a transformation constant in the configuration of this this

invention by the header unit of the image data inputted from external devices, such as a host computer, and values other than the output to a representation input value are performing the color space conversion for which it asks by interpolation processing, and make it possible to lessen a hard amount sharply.

[0009]

[Example] Hereafter, the example of this invention is explained to a detail with reference to a drawing.

[0010] Drawing 1 shows the block configuration of the color printer by one example of this invention. Within the limit [ of 109 ] is a color printer among drawing.

[0011] A header unit is separated in the header separation section 102, and the image data inputted from a host computer 101 is inputted into the color conversion converter 103.

On the other hand, the header unit of image data is inputted into CPU104.

[0012] By the inputted header unit, CPU104 is chosen from which color space the inputted image data is using and the table 106 on which the table for changing into the color space which is identified and is used by printer internal processing is stored in two or more translation tables, and is set as a transformation constant 105. Since the translation table chosen here consists of only output values over not the table to all input data but specific representation input data, it can lessen the amount of memory (that is, hard amount).

[0013] The image data inputted into the color conversion converter 103 is already changed into the color space used by printer internal processing using the transformation constant 105 to which the translation table is set by CPU104, and the image data after a color space conversion is outputted to the engine interface 107.

[0014] Here, the principle of operation of the color conversion converter 103 is explained. 301 in drawing 3 is the color space conversion section used for color conversion. The look-up table (LUT) 302 in drawing 3 is equivalent to a transformation constant 105. The translation table chosen by the header of image data inputted by CPU104 is set to this look-up table 302. To a look-up table 302, the output data about data other than a representation input value must be interpolated by that (it has only the output data to a representation input value) without the output data to all inputs as mentioned above.

[0015] For example, if 10-bit image data  $X(x_1, x_2, x_3)$  is inputted each into the color space conversion section 301, the central value over  $Q$  bits ( $0 < Q < 10$ ) of high orders of  $X(x_1, x_2, x_3)$  and the low order  $(10-Q)$  bit of  $X(x_1, x_2, x_3)$  will be outputted to the interpolation section 303 from a look-up table 302. In the interpolation section 303, (this formula's changing according to the color reproduction capacity of a printer) and central value are interpolated by the inputted central value and the formula which  $Y=f(x)$  Comes to use the low order  $(10-Q)$  bit of  $X(x_1, x_2, x_3)$ , and the data  $Y(y_1, y_2, y_3)$  after the color space conversion to  $X(x_1, x_2, x_3)$  are outputted. Color processing is performed in the engine interface (Reproduction Function) section 107, and this data is actually printed with an engine 108.

[0016]

[Effect of the Invention] The color space identifies, as having explained above, the table for changing into the color space which suited processing of printer engine chooses automatically out of the table which has more than one, and sets as a transformation constant by the header unit of the image data which is inputted from external devices,

such as a host computer, according to this invention, values other than the output to a representation input value are performing the color space conversion for which it asks by interpolation processing, and the color printer which lessened the necessary hard amount sharply can realize.